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EXAMINER

FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 04/01/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/550,489

Applicant(s)

BESHAI, MAGED E.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 January 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-102 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 29-40 is/are allowed.
- 6) ☒ Claim(s) 15-19, 20-28, 41-71, 85 and 90-102 is/are rejected.
- 7) ☒ Claim(s) 72-84 and 86-89 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.6.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. **Claims 41-56** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, newly added independent claim 41 contains the further limitation of said number of space switches per core module does not exceed the ratio where the ratio is defined in terms of the number of channels for either the inner or outer links (i.e., see claim 41, lines 10-16 with respect to everything after the word “wherein”). Applicant amended the written description to further include the above-cited limitation. In particular, see preliminary amendment B filed 1/17/03 in reference to page 3. Examiner found no support in applicant’s original specification with respect to the above-cited limitation. See e.g., applicant’s specification at page 12, lines 1-24. As claims 42-56 depend on claim 41, these claims also stand rejected.

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 15-28 and 41-56** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Examiner makes the assumption that the limitations at issue in the 112-first paragraph rejection would have been obvious to one skilled in the art.

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As to **claim 15**, lines 12-13 “said core controllers” lacks proper antecedent basis. Examiner notes a distinction in applicant’s specification with respect to a core module 26 and a core controller. Also please notes that a core controller receives the scheduled request and not the core module 26, e.g., see applicant’s specification at page 17, lines 16-19. Thus please change “said” to “a”. As **claims 16-28** depend on claim 41, these claims also stand rejected.

As to **claim 17**, lines 2-3, the term “segment” with respect to both segmenting a packet and a data segment is not found in applicant’s specification. First, applicant removed support for parsing a packet which was originally found in applicant’s specification at page 7, lines 19-27 (as originally filed). Second, the term “segmenting” may have additional functionality not found in applicant’s specification. Please use the term “parse” instead of “segment” as originally supported.

As to **claim 28**, line 1, the term “the packet switch” lacks proper antecedent basis, please change to “the switch (see e.g., claim 27).

As to **claim 41**, line 16, it is unclear what applicant means by ‘n’ as n is defined multiple times in the claim (see e.g., lines 2, 4, and 7). Also note that ‘m’ is not defined. As **claims 42-56** depend on claim 41, these claims also stand rejected.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. **Claims 15-19, 41-43, 57-64, 69, 90-95, 97 and 98** are rejected under 35 U.S.C. 102(b) as being anticipated by “Multi-tera-bit/S Switch Based on Burst Transfer and Independent Shared Buffers” to *Beshai et al.* (“*Beshai*”).

As to **claim 15**, see figure 7 of *Beshai*. In particular, page 1275 bottom left-hand column discloses that the control module can be distributed (also see figure 9). Thus the control modules are independently-controlled. As such, examiner notes a reasonable but broad interpretation of “egress module” as shown in figure 11 where the egress module is simply the next module in the chain. As such, with respect to the limitation “issue-transfer requests each specifying an egress module” see e.g., bottom left-hand column at page 1725. With respect to the limitation “distribute the packet-transfer requests among said plurality of core modules for scheduling so that each of said core module receives a portion of the transfer request”, see e.g., figure 10 on page 1727.

As to **claim 16**, see e.g., left-hand column at page 1727.

As to **claim 17**, see e.g., right-hand column at page 1726.

As to **claim 18**, see e.g., figure 7.

As to **claim 19**, see e.g., left-hand column page 1725.

As to **claim 41**, see similar rejection for claim 15.

As to **claim 42**, see e.g., bottom left-hand column at page 1725.

As to **claim 43**, see e.g., figure 11.

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As to **claim 57**, see combined rejections of claims 15 and 16.

As to **claim 58**, see e.g., left-hand column page 1725.

As to **claim 59**, see e.g., figure b.1 at page 1725.

As to **claim 60**, see e.g., top left-hand column at page 1726. Examiner notes a reasonable but broad interpretation of sufficient.

As to **claim 61**, see similar rejection for claim 16.

As to **claim 62**, see e.g., top left-hand column at page 1726.

As to **claim 63**, see e.g., bottom left-hand column at page 1730.

As to **claim 64**, see e.g., figure 10.

As to **claim 69**, see e.g., left-hand column at page 1725.

As to **claim 90**, see e.g., figure 7 in conjunction with the rejection for claim 15.

Note that the interpretation of a core module may differ from that in claim 15.

As to **claim 91**, see e.g., top left-hand column at page 1725.

As to **claim 92**, see e.g., bottom left-hand column at page 1725.

As to **claim 93**, see e.g., figure 7 in conjunction with the rejection for claim 15.

As to **claim 94**, see e.g., bottom left-hand column at page 1725.

As to **claim 95**, see e.g., figure 11 at page 1728.

As to **claim 97**, see similar rejection for claim 15.

As to **claim 98**, see e.g., right-hand column at page 1726.

6. **Claims 15-17, 57-61, 69, 85, and 97-100** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*").

As to **claim 15**, in reference to the claimed subject matter, *Ofek* discloses ingress and egress modules as gateways. Although figure 1 only shows 1 gateway device, *Ofek* inherently teaches more than one gateway device 106. Further support is provided at column 6, line 34 (emphasis gateways) and in the claims such as claim 17. Thus more than one gateway device is found at the ingress, egress, or both and the subtending sources or sinks are the end stations 105. Thus with respect to the claims, an ingress and egress modules are gateway devices and core modules are switches 10 with a signaling controller 120. Each switch 10 is independently controlled via the switch signaling controller 120. Each gateway device 106 has a connection to each switch 10 or core module. What may not be clear from the written disclosure and figure 1 are that the signal controllers 110 are virtual and distributed. Thus *Ofek* inherently teaches that the gateway devices are signal controllers 110. The assumption is further supported in the claims (see e.g., claim 18 and claim 63). Thus in reference to figure 13, examiner construes a reasonable but broad interpretation of “issue packet-transfer requests” each specifying an egress module (gateway) as a capacity assignment message 15b (e.g., see column 12, lines 9-16 and column 12, lines 42-67). Examiner notes a reasonable but broad interpretation of specifying the egress module as part of the pipe ID (PID) since a virtual pipe is defined as a sequence of switches that form a route to the desired destination (i.e., the egress module) see column 12, lines 46-47. As each switch 10 for the pipe receives the capacity assignment message 158 examiner notes the message is further distributed among the core modules for scheduling so that each of said core controllers receives a portion of said transfer message. One important distinction

between *Ofek* and applicant's instant invention is the further recitation found in claim 20.

In particular, *Ofek* teaches that the core modules (i.e., the switches 10) send the capacity-request vectors (i.e., capacity status updates 15a in reference to figures 13 and 15a).

Applicant claims that the ingress modules (i.e., the ingress controllers) send the capacity-request vectors and thus teaches away from the claimed subject matter.

As to **claim 16**, see e.g., column 8, lines 13-16

As to **claim 17**, see e.g., column 6, lines 50-56.

As to **claim 57**, see similar rejection for claim 1.

As to **claim 58**, see e.g., figure 1.

As to **claim 59**, see e.g., figure 1.

As to **claim 60**, see e.g., figure 8. Examiner notes a reasonable but broad interpretation of sufficient capacities.

As to **claim 61**, see e.g., column 8, lines 13-16

As to **claim 69**, see e.g., column 9, lines 28-64.

As to **claim 85**, see similar rejection for claim 1. In addition, with respect to the further limitation of sending from the ingress module a connection request to a selected one of the core modules, requesting a connection of a specified capacity to said one of the egress modules, see e.g., figure 15b. Also, as taught in column 12, lines 43-65 both the ingress/egress module (i.e., the gateway 106 and signaling controller 110) and the core module (i.e., the switch 10) determine a feasible capacity allocation. In particular, with respect to the core module determining, the switching signaling controller 120 (see figure 10) determines feasibility based on the switch capacity table. This second check is

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performed since the control portion is distributed. In particular, see column 12, lines 29-67 where returning the connection request to said one of ingress modules is taught as part of configuration/denial signal 15c (see figure 13). Examiner notes that “subtracting” said feasible capacity allocation from said specified capacity allocation to update said connection request is implicitly taught by *Ofek* in determining if the grant is successful. In particular, see column 11, lines 9-21 in reference to column 12, lines 18-26.

As to **claim 97**, see the combined rejection for claims 1 and 85. Also noted is that each output port of each switch has a unique address for deciding a destination (e.g., see column 7, lines 28-33 in relation to claim 17).

As to **claim 98**, *Ofek* is silent on the use of buffers.

As to **claims 99 and 100**, see e.g., column 6, lines 50-56 and column 7, lines 25-27 of *Ofek*.

7. **Claims 90-96** are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,563,837 B2 to *Krishna et al.* (“*Krishna*”).

As to **claim 90**, *Krishna* discloses a method and apparatus for providing work-conserving properties in a non-blocking switch. In the context of the rejection, an ingress module is shown in figure 1 where these modules are interconnected together shown in figure 18 where ingress node might be switch 222. Thus examiner assumes a reasonable but broad interpretation of “core modules” as one of the other switches (e.g., switch 223). As such, figure 1 shows an ingress controller (e.g., arbiter 90) with a plurality of ingress ports and output ports. Also taught is assigning priority to the input ports (e.g., see column 3, lines 52-67) where each of the input ports has an input buffer that corresponds

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to a particular output port (e.g., see column 4, lines 25-30). *Krishna* teaches routing using a route processor (e.g., column 7, lines 27-34) where a set of predefined paths are the connection channels 80-88 (e.g., see column 8, lines 5-15). Connection requests based on destination and capacity are also taught by the reference (e.g., see column 15, lines 1-6). Examiner encourages applicant to further clarify the relationship between the ingress module and the core module.

As to **claims 91-93**, see figure 1 with respect to arbiter 90.

As to **claim 94**, examiner notes a reasonable but broad interpretation of predefined paths. As such see figure 1.

As to **claim 95**, see figure 18.

As to **claim 96**, information is sent over time slots thus a reasonable but broad interpretation of time coordination is taught.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 62-64 and 101-102** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*") in view of "Distributed Path Reservation Algorithms for Multiplexed All-Optical Interconnection Networks" to *Yuan et al.* ("*Yuan*").

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In making a proper obviousness rejection under MPEP 706.02(j), the examiner will address the following four steps:

- a) *the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line numbers where appropriate;*
- b) *the difference of differences in the claim(s) over the applied cited references;*
- c) *the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and*
- d) *an explanation why one skilled in the art at the time of the invention was made would have been motivated to make the proposed modification.*

As such to **claim 62**, for step (a) *Ofek* discloses the limitations in the base claims.

For step (b) *Ofek* is silent or deficient to the further limitation wherein each core module includes circuitry for time domain multiplexing (TDM) a plurality of ingress-to-egress module connections. In particular, *Ofek* teaches multiplexing in general but is silent or deficient to TDM or WDM specifically, see e.g., column 8, lines 18-19.

Yuan teaches the further recited limitation above in the abstract.

For step (c), the proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify *Ofek* by clarifying that the multiplexing performed between switches is TDM.

In order to establish a prima facie case of obviousness for step (d), three basic criteria must be met. The three criteria according to MPEP 706.02(j) are as follows:

First there must be some suggestion or modification, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As such, for step (d) examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further limitation wherein

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each core module includes circuitry for time domain multiplexing (TDM) a plurality of ingress-to-egress module connections. In particular, the motivation for modifying the reference or to combine the reference teachings would be to allow large optical bandwidth to be shared among multiple connections. In particular, *Yuan* cures the above-cited deficiency by providing a motivation found in the abstract. Examiner notes a further motivation of providing virtual channels as further provided by *Yuan* at page 38, right-hand column. Second, there would be a reasonable expectation of success since TDM as disclosed by *Yuan* is well known in the art and uses multiplexing as proposed by *Ofek*. Thus the references either in singular or in combination teach the above claim limitation.

As to **claim 63**, see e.g., figure 1 of *Ofek*.

As to **claim 64**, see e.g., figure 1 of *Ofek*.

As to **claim 101**, see similar rejection for claim 62 where *Yuan* teaches using either TDM or WDM.

As to **claim 102**, see e.g., figure 13 of *Ofek*.

10. **Claims 65-68** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*") in view of "Distributed Path Reservation Algorithms for Multiplexed All-Optical Interconnection Networks" to *Yuan et al.* ("*Yuan*") in further view of "Considerations on optical wavelength multiplexing versus optical time multiplexing in transport network" to *Limal et al.* ("*Limal*").

In making a proper obviousness rejection under MPEP 706.02(j), the examiner will address the following four steps:

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- e) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line numbers where appropriate;*
- f) the difference of differences in the claim(s) over the applied cited references;*
- g) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and*
- h) an explanation why one skilled in the art at the time of the invention was made would have been motivated to make the proposed modification.*

As to **claim 65**, for step (a) *Ofek* and *Yuan* discloses the limitations in the base claims.

For step (b) *Ofek* and *Yuan* are silent or deficient to the further limitation additionally including at least one cross-connector connecting a subset of the ingress modules to the core modules. In particular, *Ofek* teaches a plurality of connections in general.

Limal teaches the further recited limitation above in the introduction.

For step (c), the proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify at least *Ofek* by including an optical cross-connect between modules.

In order to establish a prima facie case of obviousness for step (d), three basic criteria must be met. The three criteria according to MPEP 706.02(j) are as follows:

First there must be some suggestion or modification, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As such, for step (d) examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further limitation additionally including at least one cross-connector connecting a subset of the ingress modules to the core modules.

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In particular, the motivation for modifying the reference or to combine the reference teachings would be to multiplex several channels coming from the lower layer in time, wavelength or a combination of the two. Such multiplexing may help reduce cost or transporting information over a data network 100 such as that shown in figure 1 of *Ofek*. In particular, *Limal* cures the above-cited deficiency by providing a motivation found in the introduction. Second, there would be a reasonable expectation of success since TDM as disclosed by *Yuan* is well known in the art since manipulation is between modules and does not impact the modules themselves. Thus the references either in singular or in combination teach the above claim limitation.

As to **claim 66**, see e.g., column 6, lines 50-56 and column 7, lines 25-27 of *Ofek*.

As to **claim 67**, see e.g., figure 2 of *Ofek*.

As to **claim 68**, see e.g., column 5, lines 4-13. Also see column 4, lines 1-14.

11. **Claims 41-43 and 45-48** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*") in view "Considerations on optical wavelength multiplexing versus optical time multiplexing in transport network" to *Limal et al.* ("*Limal*").

As to **claim 41**, *Ofek* may be silent or deficient with respect to cross connects having n outer links and n inner links. *Limal* teaches the above-limitation at e.g., figure 1. Thus examiner notes a similar rejection above with respect to claim 65.

As to **claim 42**, see similar rejection for claim 15.

As to **claim 43**, see figure 1 of *Ofek*.

As to **claim 45**, see e.g., figure 2 of *Ofek*.

As to **claim 46-48**, see e.g., column 6, lines 50-56 and column 7, lines 25-27 of *Ofek*.

12. **Claims 44 and 49-53** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*") in view "Considerations on optical wavelength multiplexing versus optical time multiplexing in transport network" to *Limal et al.* ("*Limal*"). and in further view of "Distributed Path Reservation Algorithms for Multiplexed All-Optical Interconnection Networks" to *Yuan et al.* ("*Yuan*").

As to **claim 44**, see similar rejection to claim 62.

As to **claim 49**, see similar rejection to claim 62.

As to **claim 50**, see e.g., column 6, lines 50-56 and column 7, lines 25-27 of *Ofek*.

As to **claim 51**, see figure 1 of *Ofek* where examiner notes a reasonable but broad interpretation of co-located.

As to **claim 52**, see similar rejection for claim 97.

As to **claim 53**, see e.g., column 6, lines 50-56 and column 7, lines 25-27 of *Ofek*.

13. **Claims 54-56, 70, and 71** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,385,198 B1 to *Ofek et al.* ("*Ofek*") in view of "Distributed Path Reservation Algorithms for Multiplexed All-Optical Interconnection Networks" to *Yuan et al.* ("*Yuan*") in further view of "Considerations on optical wavelength multiplexing versus optical time multiplexing in transport network" to *Limal et al.* ("*Limal*") and U.S. Patent No. 5,168,492 A to *Beshai et al.* ("*Beshai*").

In making a proper obviousness rejection under MPEP 706.02(j), the examiner will address the following four steps:

- i) *the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line numbers where appropriate;*
- j) *the difference of differences in the claim(s) over the applied cited references;*
- k) *the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter; and*
- l) *an explanation why one skilled in the art at the time of the invention was made would have been motivated to make the proposed modification.*

As to **claims 70 and 71**, for step (a) *Ofek, Yuan and Limal* discloses the limitations in the base claims.

For step (b) *Ofek, Yuan and Limal* are silent or deficient to the further limitation of including a space switch in the core modules and in particular a single-stage electronic rotator switch. In particular, *Ofek* teaches switching in general for switch 10. *Limal* teaches using a space switch but may be unclear that the space switch is at a core module.

Beshai teaches the further recited limitation above in figure 2.

For step (c), the proposed modification of the above-applied reference(s) necessary to arrive at the claimed subject matter would be to modify at least *Ofek* by including a space switch in the core modules (i.e., switches 10) and in particular a single-stage electronic rotator switch.

In order to establish a prima facie case of obviousness for step (d), three basic criteria must be met. The three criteria according to MPEP 706.02(j) are as follows:

First there must be some suggestion or modification, either in the reference(s) themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

As such, for step (d) examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the further limitation including a space switch

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in the core modules and in particular a single-stage electronic rotator switch. In particular, the motivation for modifying the reference or to combine the reference teachings would be to use space switching in general and a single stage electronic rotator switch in particular in order to both reduce the switching hardware as well as eliminate the need for arbitration when one that one inlet competes for the same outlet. In particular, *Beshai* cures the above-cited deficiency by providing a motivation in the abstract. Second, there would be a reasonable expectation of success since the references disclose time switching such using either STM or ATM. Thus the references either in singular or in combination teach the above claim limitation.

As to **claims 54-56**, see similar rejections for claims 70 and 72.

Allowable Subject Matter

14. **Claims 29-40** allowed.

15. **Claim 72-84 and 86-89** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. **Claims 20-28** are would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225.

The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

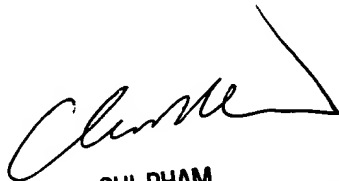
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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